Green Building
and
Sustainable Architecture
Reference Manual

BUILDING DIVISION

WWW.BURBANKCA.ORG/BUILDING

COMMUNITY DEVELOPMENT DEPARTMENT

CITY OF BURBANK

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Green Building and Sustainable Architecture Program

What is Sustainable Architecture?

The State has determined that Sustainable Buildings use key resources such as energy, water, and materials more efficiently than buildings that are simply built to code. Sustainable or "green" buildings can create healthier work environments by providing more natural light, better indoor air quality, and reduced greenhouse gas emissions, all of which contribute to greater productivity in the workplace. These buildings are more cost-effective in the long run, saving money by reducing costs from operations, maintenance and utility bills. Rapidly becoming more common in residential construction, green building can produce healthier living conditions in the home as well.

In 2004, the City of Burbank adopted this voluntary Green Building and Sustainable Architecture program for new construction in order to:

- Reduce energy and water consumption
- Improve indoor and outdoor air quality
- Encourage use of renewable resources and recycled materials
- Divert construction and demolition debris away from landfills.

The complete ordinance is found in Title 9, Chapter 1, of the Burbank Municipal Code. These provisions are a guideline to assist owners who would like to incorporate sustainable building practices into residential or commercial construction projects. Plan check and permit fee incentives apply to projects that meet or exceed sustainability levels as described on page 4 of this manual. For further questions, please contact the Building Division at 818-238-5220 or www.burbankca.org/building.

I. California Green Building Standards Code

The new California Green Building Standards goes into effect August 1, 2009, as the first statewide green building standards code in the nation. The code will initially be mostly voluntary, but the sections to the right in Table A will be mandatory for all new construction.

The Department of Housing and Community Development will implement additional mandatory regulations in the GBSC to coincide with the January 1, 2011, effective date of the next triennial building code change which will apply to housing construction.

TABLE A

- Section 512.1.1, Electrical Controls. Controls for elevators, escalators and other equipment that reduce energy demand shall meet specified requirements of CCR, Title 8, Industrial Relations, and shall not interrupt emergency operations for elevators required by the California Building Code (CBC).
- Section 604.1, Outdoor Water Use Budget. A water budget shall be developed for landscape irrigation use based on the Department of Water Resources' Model Water Efficient Landscape Ordinance.
- Section 707.1, Weather Resistance and Moisture Management. Provide a weather-resistant exterior wall and foundation envelope that meets CBC Section 1403.2 and California Energy Code (CEC) Section 150 requirements.
- Section 710.1, Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.
- Section 804.4.4, Composite Wood Products. Hardwood, plywood, particle board and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde content consistent with California Air Resources Board (CARB) guidelines. As of January 1, 2009, a measure adopted by CARB requires these composite wood products to be labeled by the manufacturer for formaldehyde content.
- Section 804.6, Ozone Depletion. Installed HVAC, refrigeration and fire suppression equipment may not contain chlorofluorocarbons. The federal Clean Air Act phased out the production of nonessential chlorofluorocarbons in 1996.
- Section 806.1, Outside Air Delivery. Naturally or mechanically ventilated spaces in buildings must meet the existing ventilation requirements of the CEC and Title 8, Industrial Relations.

I. Sustainability Levels

All projects submitted as part of the Green Building and Sustainable Architecture Program shall meet the construction requirements in accordance with BMC Table 9-1-10-103.

TABLE B – Burbank Municipal Code Table 9-1-10-103

CATEGORY	SUSTAINABILITY LEVEL		
	I	II	III
Construction and Demolition Waste in excess of code requirements	X	X	X
Storm Water Pollution Prevention* in excess of code requirements	X	X	X
Sustainable Building Methods and Materials	Not required	50% of point total for LEED Certified	Achieve LEED Certified or greater
LEED® Certification	Not Required	Not Required	X

*Mandatory for specific project types. See BMC Title 9, Chapter 1, Article 9, "Standard Urban Storm Water and Urban Runoff Management Programs.

TABLE C - RECOMMENDED SUSTAINABILITY LEVEL

Project Type	Recommended Level
Commercial - New	
• Greater than 50,000 SF	III
• 5,000 SF to 50,000 SF	II
• Less than 5,000 SF	I
Commercial - Addition	
• Greater than 50,000 SF	III
• 5,000 SF to 50,000 SF	II
• Less than 5,000 SF	I
Commercial – Tenant Improvement	
• Greater than 50,000 SF	III
• 5,000 SF to 50,000 SF	II
• Less than 5,000 SF	I
Multi-Family Residential	
• New	II
• Additions	I
Single-Family Residential	
• New	II
• Additions	I

II. Construction and Demolition Materials

RECYCLERS IN THE BURBANK AREA

For complete details on the City's Diversion of Construction of Demolition Debris Ordinance and list of recyclers by material type, please see the C&D Reference Manual on the Building Divisions web site at: http://www.burbankca.org/building.

The recycling requirement can be fulfilled by utilizing a licensed waste hauling service that recycles the mixed C&D debris. The following is a list of licensed waste haulers that recycle:

TABLE D - C&D MATERIALS	
Materials	**Components**
Wood	• Lumber, plywood, scraps, laminates (no pressure-treated wood)
Drywall	• Sheetrock, gypsum, plaster
Metals	• Pipes, rebar, flashing, steel, aluminum, copper, brass, stainless steel
Plastics	• Vinyl siding, doors, windows, floor tiles, pipes
Roofing	• Asphalt & wood shingles, slate, tile, roofing felt
Rubble	• Asphalt, concrete, cinder block
Brick	• Bricks and decorative blocks
Glass	• Windows, mirrors, lights
Miscellaneous	• Carpeting, fixtures, insulation, ceramic tile

TABLE E – RECYCLERS OF C&D DEBRIS		
BFI Waste Systems	Sun Valley	(888) 742-5234
Frank's Disposal	Sun Valley	(818) 352-5001
Looney Bins Inc. www.looneybins.com	Sun Valley	(818) 768-7197 rudy@looneybins.com
Metropolis Disposal		(818) 901-2020
Southland Disposal		(818) 500-4884
Crown Disposal	Sun Valley	(818) 767-0675
Pinnacle Disposal	Irwindale	(626) 480-1305
(The City is not endorsing or recommending any of the listed providers. If you are a licensed recycling business and would like to be listed, please contact the Building Division.)		

LOCAL MATERIAL RECOVERY FACILITIES (MRFs) - For mixed waste debris:

- Downtown Diversion - 2424 E Olympic Blvd., Bldg.#3, LA 90021, (213) 612-5005, www.downtowndiversion.com
- Community Recycling & Resource Recovery, 9147 DeGarmo Av., Sun Valley, (818) 767-6000, www.communityrecycling.net
- Looney Bins, Inc., 11616 Sheldon St. ,Sun Valley, (818) 252-0019, www.looneybins.com

III. Storm Water Pollution Prevention

Construction projects are required to meet minimum storm water pollution prevention requirements regardless of whether or not the project complies with the Green Architecture and Sustainable Building Program standards. The most basic of these measures includes preventing trash, debris, excess concrete, paint, plaster and other building materials from entering the storm drain system.

Additional information on the storm water program is located in the City of Burbank Storm Water and Urban Runoff Discharges Manual, referred to in the adjacent table as "Manual."

BMC Title 9, Chapter 1, Article 9, specifies the minimum project and project characteristics requirements.

The Sustainable Building Program identifies these minimum requirements as mandatory measures. To meet the goals of this program, the proposed project must exceed the minimum requirements of the BMC.

TABLE F - CONSTRUCTION MANDATORY MEASURES	
• Install applicable Best Management Practices (BMPs) for construction activity.	Comply with minimum BMPs required for all construction projects. *Refer to City of Burbank Municipal Storm Water and Urban Runoff Discharges Manual, BMPS CA1 – CA40.*
• Projects less than 1 acre in area.	Provide Local Storm Water Pollution Prevention Plan (LSWPPP). *Refer to City of Burbank Manual.*
POST-CONSTRUCTION MEASURES EXCEEDING MINIMUM BMC REQUIREMENTS	
• Commercial developments of less than 100,000 sf of impervious area.	Comply with SUSMP measures for commercial projects of 100,000 sf or more. *Refer to City of Burbank Manual, Source Control BMPs SC1 – SC14, and Treatment Control BMPs TC1 – TC8.*
• Redevelopment projects resulting in less than 5,000 sf of impervious surface.	Comply with SUSMP measures for redevelopment projects of 5,000 sf or more. *Refer to City of Burbank Manual, Source Control BMPs SC1 – SC14, and Treatment Control BMPs TC1 – TC8.*
• Projects with parking lots of less than 5,000 sf or less than 25 spaces	Comply with SUSMP measures for parking lots, including source and treatment control for oil contamination. *Refer to City of Burbank Manual, Source Control BMPs SC1–SC14, and Treatment Control BMPs TC1–TC8.*
• Multi-family projects of less than 10 units.	Comply with SUSMP measures for multi-family projects. *Refer to City of Burbank Manual, Source Control BMPs SC1–SC14, and Treatment Control BMPs TC1–TC8.*
• Single-family hillside homes less than on acre.	Comply with SUSMP measures for hillside homes, including protection of slopes, diversion of roof runoff and vegetated areas. *Refer to City of Burbank Manual, Source Control BMPs SC1 – SC14, and Treatment Control BMPs TC1 – TC8.*

IV. Sustainable Building Methods and Materials

Recycled Products. The California Integrated Waste Management Board (CIWMB) maintains the "RCP Directory," which is a database of recycled-content products, at the following web address: www.ciwmb.ca.gov/RCP/.

Materials Efficiency. The CIWMB has a web page devoted to sustainable and green building materials: www.ciwmb.ca.gov/GreenBuilding/Materials

TABLE G

MATERIALS	COMPONENTS
SITE	
• Paving	• Recycled paving • Recycled surfacing materials • Recycled aggregate base.
• Landscaping	Exceed parking lot landscaping requirements in BMC Title 10, Chapter 1, Section 1418. • 5 - 21 Spaces: Provide 10% landscaping. • 21+ Spaces: Provide 15% landscaping; 50% shading within 10 years. *Refer to BMC Section 10-1-1418.*
CONCRETE	
• Recycled Fly Ash	Concrete mix with fly ash or slag content. **(Mixture must comply with all structural and Building Code requirements.)**
MASONRY	
• Reused	• Reused marble • Salvaged stone, brick
METALS	
• Light Gauge Steel Framing	Recycled-content structural steel
WOOD	
• Engineered Lumber	Specify Glu-lam beams, laminated veneer lumber, parallel strand lumber, oriented strand board for headers, beams, and sheathing
• Forest Stewardship Council (FSC) Certified Wood Products	Specify FSC certified wood products: Flooring, decking, millwork, molding, doors and frames, fencing, paneling, siding, cabinets, windows, engineered and solid lumber. For manufacturers and distributors of FSC products in the USA contact: • Scientific Certification Systems www.scs1.com Tel 510-452-8000 Fax 510-452-8001 • Smart Wood Program www.smartwood.org Tel 802-434-5491 Fax 802-434-3116
• Treated Wood	Specify treated wood that does not contain chromium or arsenic, for decking and other exposed locations.

INSULATION	
• Recycled Content Insulation (**Must meet Title 24 Energy Code standards**)	• Blown-in cellulose • Greenguard certified fiberglass, • Rockwool • Recycled denim/cotton insulation • Bio-based foam insulation
ROOFING	
• Recycled Content Materials (**Must meet Title 24 Energy Code standards**)	• Recycled metal roofing • Wood/plastic composite • Cement with fly ash or slag • Energy Star™ rated cool roof • Green roof • Building integrated solar roof • Fiber composite • Rubber • Plastic or plastic-rubber composite
SIDING	
• Recycled Content Siding	Specify hardboard, fiber-cement, or other recycled content siding products with 50-year warranty (non-vinyl)
DOORS & WINDOWS	
• Energy Efficient Windows (**Must meet Title 24 Energy Code standards**)	Specify dual-paned, low-emissivity, and low-conductivity windows.
• Doors	Cores made from formaldehyde-free resins
FINISHES	
• Acoustical Ceiling Tiles	• Perlite content ceiling tiles emit no VOCs and are also recyclable.
• Carpet and Underlayment	• CRI Green Label carpet • Recycled content carpet • Natural/bio-based fibers • Carpet with manufacturer take back
• Tile	Recycled content ceramic or glass tile.
• Flooring	• FSC-Certified wood floors • Bamboo/palm wood floors • Stained finished concrete • Cork • Linoleum
• Gypsum Board	• Recycled content gypsum board
• Paint	• Zero VOC paint, Greenseal or SCS certified • Recycled reprocessed paint • Natural paints (lime-based, milk paint, natural clay)

V. Green Building Fee Discounts

TABLE H		
FEE	**SUSTAINABILITY LEVEL**	**DISCOUNT**
Plan Check	I	5%
Permit	I	5%
Plan Check	II	10%
Permit	II	10%
LEED® Certified, Silver, Gold		
Plan Check	III	15%
Permit	III	15%
Transportation Fee	III	5%*
LEED® Platinum		
Plan Check	III	20%
Permit	III	20%
Transportation Fee	III	5%*

*Requires:

1. Membership in the Burbank Traffic Management Organization or other approved traffic management organization and participation in the trip reduction program.
2. At least three LEED points in Sustainable Sites, Alternative Transportation, credit categories: 4.1 Public Transportation, 4.2 Bicycle Storage and Changing Rooms, 4.3 Low-Emitting and Fuel Efficient Vehicles, and 4.4 Parking Capacity.

Fee Waivers

TABLE I		
FEE	**SUSTAINABILITY LEVEL**	**DISCOUNT**
Photovoltaic Systems	All	Fee Waived*
Solar Heating Systems	All	Fee Waived*

*Fee waiver applies to system permit only. Structural work or other similar work required to safely install the system is not included.

VI. Landscaping Guidelines

Based on the California Green Building Standards Code and the revised Model Water Efficient Landscape Ordinance developed by the State of California Department of Water Resources in California Code of Regulations, Title 23, Division 2, Chapter 2.7.

The State has found that water is in limited supply and is subject to ever increasing demands. **Effective August 1, 2009**, affected construction projects will be required to submit a water budget for landscape irrigation along with the construction documents submitted for plan check. A sample calculation is given in Table J to the right

State Assembly Bill 1881, signed into law Sept. 28, 2006, requires that all cities adopt a water efficient landscape ordinance on or before **January 1, 2010**, that is at least as effective in conserving water as the Model Water Efficient Landscape Ordinance developed by the State of California Department of Water Resources. This ordinance will institute other requirements in addition to the water budget mentioned above.

The intent of these regulations is to use water more efficiently by setting a Maximum Applied Water Allowance (MAWA), which is an upper limit for annual water use, and to implement other measures that reduce water use to the lowest practical amount.

The Building Division expects that the 2010 ordinance will require construction projects with landscape areas equal to or greater than 2,500 square feet to set a MAWA budget and to submit a Landscape Documentation Package that includes water use calculations, landscape design plans, and irrigation design plans.

Other requirements may apply to affected projects and renovations of existing landscapes. The complete ordinance is still under development. Please check back with Building Division at year-end, 2009.

TABLE J – PROPOSED IRRIGATION REQUIREMENTS

Check with Building Division first

The Landscape Documentation Package is expected to include all of the following elements. The requirements will be further detailed in the final draft ordinance pending adoption by the City Council in 2009 for a Jan. 1, 2010, effective date.

1. Water Efficient Landscape Worksheet
2. Soil Management Plan
3. Landscape Design Plan
4. Irrigation Design Plan
5. Grading Design Plan
6. Effective Precipitation Disclosure Statement (Optional)

Example MAWA Calculation #1:

MAWA = (ETo)(0.62)[0.7 x LA + 0.3 x SLA]

Where:

MAWA	=	Maximum Applied Water Allowance (gallons per year)
ETo	=	Reference Evapotranspiration (inches per year)
0.7	=	ET Adjustment Factor
LA	=	Landscaped Area (square feet0
0.62	=	Conversion Factor (to gallons per square foot)
SLA	=	Portion of the landscape area identified as Special Landscape Area In square feet
0.3	=	The additional ET Adjustment Factor for Special Landscape Area (1.0 – 0.7 = 0.3)

(The following is a hypothetical example to demonstrate the proper use of the equation and does not represent an existing and/or planned landscape project)

A hypothetical project in Burbank has an irrigated landscape area of 5,000 square feet without any Special Landscape Area (SLA = 0), no recreational areas, or use of recycled water. To calculate MAWA, the annual ETo value for Burbank is 51.7 inches.

MAWA = (ETo)(0.62)[0.7 x LA + 0.3 x SLA]
MAWA = (51.7 inches)(0.62)[0.7 x 5,000 square feet + 0.3 x 0] =
112,189 gallons per year

To convert from gallons per year to hundred-cubic-feet per year:
(100 cubic feet = 748 gallons)
112,189 gallons per year/748 gallons = 150 hundred-cubic-feet per year